

WORKER MANAGEMENT SYSTEM USING ONLINE ATTENDANCE SYSTEM BASED ON FINGERPRINT AND GPS IN THE SMARTPHONE

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Abstract: This paper introduces a smart, automated way for companies to be able to consistently track their attendance and monitor their workers, especially when they are always on the move. It aims to benefit both the Manager and the Workers through an android application that ensures that Workers do not need to physically be present at their work place to give attendance and also make sure that Manager always have an eye on the work of his/her Workers. In today's world, paper based attendance management system is used, so the problem of using manual attendance system is that it is time consuming and also sometime provides erroneous result. Automated attendance management system provides many benefits, it reduces pen and paper based manual attendance system. Following this thought we have built an online attendance management system based on fingerprint and GPS. This application makes use of Fingerprint for authentication, GPS for location tracking of the employees and also provides time and location of the worker's.

Keywords: Workers, Attendance, Managers, Android application, fingerprint, GPS(Global Positioning System), Authentication.

I. INTRODUCTION

Now a days, worker's attendance monitoring is very essential for almost every institution or organization. Typically there are two types of attendance system available, Manual and Automated systems. Manual system(Traditionally used method) involves the use of sheets of paper or registers in taking attendance where Worker fill out and managers oversee for accuracy. This method could be inaccurate because sheets could be lost or damaged. Also the extraction of relevant data and the manual computation of working time is very time consuming. On the other hand, automated time and attendance systems implies the use of Fingerprint and GPS .

In these techniques, Workers touch or swipe in order to provide their identification and also the entering and leaving time to calculate working hours. Using an automated system for time and attendance monitoring reduces the errors of manual system and conserve optimal amount of time

but it is expensive.

In this paper, considering the wide popularity of smartphones with fingerprint sensors, we introduce the use of smartphone for this time and attendance tracking purpose. We have proposed a location based smart attendance tracking system based on the concept of web services which is implemented as an Android mobile application that communicates with the Firebase in which the database is located and Internet connectivity (Wi-Fi/4G) is needed for connecting to Firebase database residing in the remote server. Our proposed smart system does not require any kind of external device other than smartphone which will reduce computational time and cost of placing an extra device.

II. LITERATURE REVIEW

Analysis, Design and Implementation of a Web-Based Payroll [1]. An application software for a large size external firm that would help them to automate the payroll processing and related tasks for the users in that company.

Advantages: Payroll Generation for large no. of users..Limitations: Enter and view payroll manually. Smartphone for next Generation attendance system and human resources payroll system. [2] Smartphone for next Generation attendance system and human resources payroll system. An Attendance system utilizes the sensors on the mobile device such as GPS microphone, and fingerprint Scanner. Advantages – Using GPS, microphone and fingerprint scanner for calculating attendance and payroll. voice recognition Method due to the availability of microphone on a mobile device.

Limitations - Battery and network issues. [3] Manual checking of payroll and attendance. Works only on android platform. Smart mobile attendance system using voice recognition and fingerprint on smartphone. An attendance system that integrated with system payroll so that overtime can be calculated automatically, while also providing feature to monitor user who working out of office. Advantages – Fingerprint sensor as well as voice recognition. Limitations – Only generates attendance. Payroll needs to be calculated manually. Less accurate. Several techniques and methods have been carried out effectively to monitor worker's attendance. Lawson proposed a cost effective computer based embedded attendance management system by which authority electrically monitors the attendance for verification using an improvised electronic card. These cards contain essential information of an individual. These are inserted in an electronic machine which will record the time, location and other information to a server system. Password based authentication and verification of attendance monitoring system of any individuals has also been carried out in this process. However, an issue with these electronic cards or password based system allows for hoax since cards or passwords can be shared or someone can ask other person to insert his/her card or password. This problem can be addressed by using biometric systems which includes fingerprint or iris recognition or other methods. A system was proposed and implemented by authors by using fingerprints to identify and calculate the attendance and generate the reports after a fixed time duration. Individuals simply put their fingerprints on the fingerprint scanners which scans the fingerprint and verifies that worker's. Both the fingerprint and iris recognition based approach needs some extra devices or scanner which can be connected to the secure server system. In our work, we addressed the problem utilizing smartphones internet connectivity for supervise the presence or attendance of an individual.

Smartphone based monitoring system reduces the surplus cost of external scanning device because now a days almost each worker have a smartphone of his own.

III. METHODOLOGY

It is a traditional register system, which lacks to provides information remotely, if the register is misplaced then all the data is gone. The Current System is lacking providing online attendance system to daily wages workers. No proper management structure for attendance. It is a fully manual system and the attendance is marked on registers and attendance cards. Hence, we cannot track the attendance and verify it, until the manager reaches the site and attendance cannot be verified remotely. The payment management is different for worker and manager which creates problem at the time of payments of their daily wages. The problems in this fully manual can be overcome by digitalizing the attendance of the daily wage workers. Several authors, have also attempted to work on the same issue of attendance generation and have presented the effective systems. This system will focus on the attendance of the workers working on different fieldwork. We have integrated attendance system, based on the attendance of the worker in one application. We will be tracing the location of the workers who are working infields of the company using GPS (Global Positioning System). Through this, we will keep a track on the attendance of the employees outside the company premises. The report of the attendance will automatically be generated based on the attendance of the worker. The manager of the company will be using an application to maintain the attendance of the worker working on various locations at the same time.

FEATURES

- a. In this proposed system we are getting to develop an android application which can eliminate all the drawbacks of the prevailing system, which contains the subsequent dynamic features.
- b. No must maintain several separate records and manual calculations.
- c. 24x7 availability of data.
- d. Fully automated
- e. Very easy installation
- f. It has low operating cost
- g. It is secured than traditional attendance system.

Should have easy to know interface in order that it might be useful for both Worker and Manager to work.

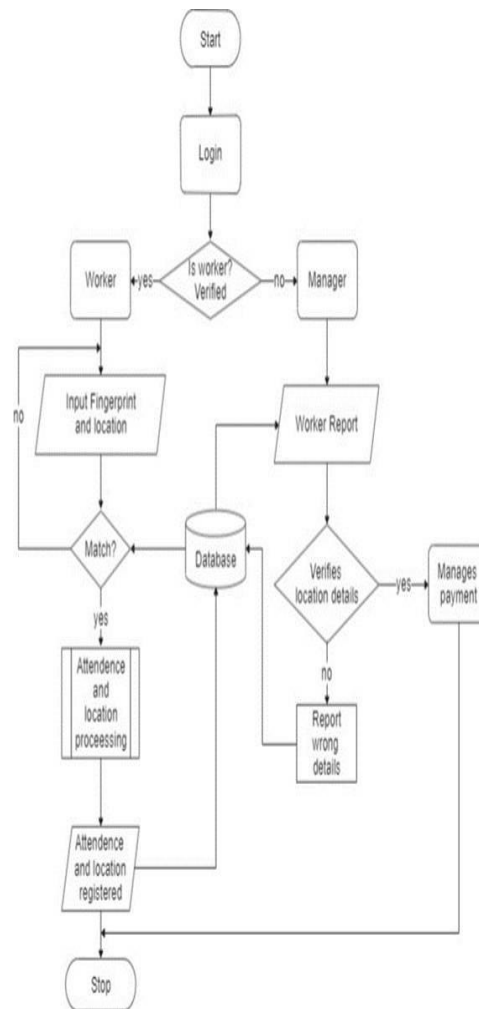


Figure 1:A System Architecture of Application

IV. EXPERIMENTAL RESULTS

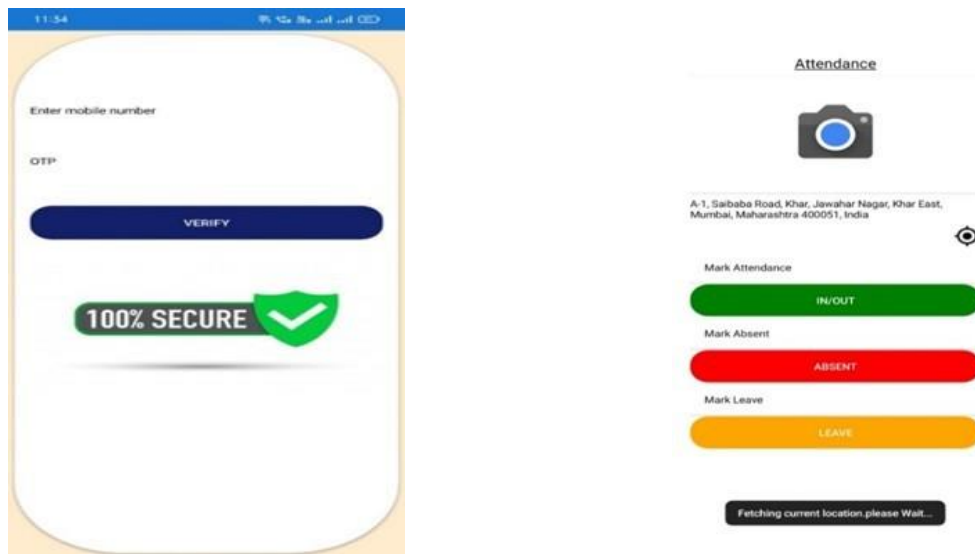


Figure 2: Login page where the Manager sign-in using the phone number.



Figure 3: Home Page where the list of workers can be viewed

Basic Information

Employee name

Mobile Number

Email (Optional)

DOB: 25 Jan 1985 Joining: 30 Oct 2021

Employee ☒ Team Leader ☐ Team Head ☐

Take Pic:

Upload Document(Aadhar Card, Pan Card, Driving Etc.)

SUBMIT

Today ☒ 1 Month ☐ 2 Month ☐ 3 Month ☐ 6 Month ☐ 1 Year

Total	Active	De-Active
2	2	0

Present	Absent	Leave
0	1	1

☒ All department

Total: 2

Date	Name	In-Time	Out-Time	Status
30 Oct 2021 Saturday	Edi Profile			Absent
	In Address	Out	Out Address	
	A-1, Sakbaba Road, Khair, Jawahar Nagar, Khair, East, Mumbai, Maharashtra 400051, India		A-1, Sakbaba Road, Khair, Jawahar Nagar, Khair, East, Mumbai, Maharashtra 400051, India	
30 Oct 2021 Saturday	Bhargav			Leave

Home Report Settings

Figure 4: Mark Attendance Page where the user can mark the attendance using this page.

Figure 5: The Manager enters the details of its employees to add them to the List of employ

Hi, Edit Your Profile

Help

About Us

Privacy Policy

Support (+91 9988830152)

Company Setting

Sing out

Log Out

Version

V1.4.4

Home Report Settings

Figure 6: Attendance list of employee with in/out time and location. In this page the manager can view the attendance.



Figure 7: When the manager marks the attendance a treat message is displayed when the attendance is successfully marked.

V. CONCLUSION

This project introduce a Location based Time and Attendance System, that use Location as the key of attendance. It is as secured as the traditional attendance system because of authentication and verification system. The coordinates of a corporation and an employee are often determined by the assistance of GPS device. If worker finds any issue in his/her attendance they can report and verify the details with the manager. The system code is additionally neat that it'll form the idea for further enhancement and also new operations are often included within the system.

VI. FUTURE SCOPE

We developed this system for Android application, but we are focusing on developing this system for IOS platform as well in near future. This system is extremely flexible in order that the upkeep and further amendments supported the changing environment and requirements are often made easily. Any changes which will cause system failures are prevented with security measures. The project will support a multi-user environment, which is quite one user can access simultaneously. It are often further developed to incorporate more operations and analysis, as changes are required within the system to adapt to the external developments. Further enhancements are often made to the system at any later point in time. Coding procedures are often modified consistent with the requirements of the user.

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VII.